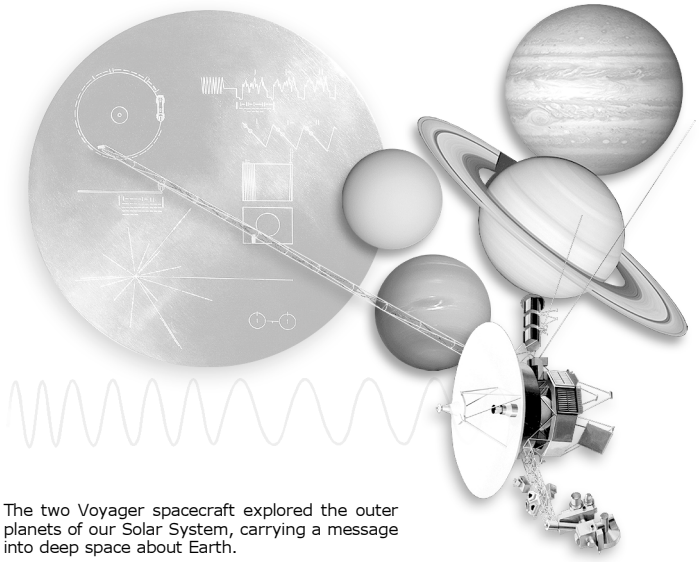


The two Voyager spacecraft explored the outer planets of our Solar System, carrying a message into deep space about Earth.

Canberra Space Centre
FACT SHEET
www.cdscc.nasa.gov

Voyager

The Grand Tour and Beyond

The Voyager spacecraft are among NASA's most successful exploration missions. Since their launch in 1977, they have pushed the boundaries not only of distance, but of our understanding of the Solar System and Universe around us.

The twin craft were originally designed to provide us with the first close-up look at the 'gas giant' planets of our solar system - Jupiter, Saturn, Uranus, and Neptune. Every few years throughout the late 70s and 80s, there was a new encounter with one of these worlds. The Voyager probes provided tantalising glimpses of those planets swirling, colourful cloud patterns, high speed winds, Earth-size storms, diverse and numerous moons, and delicate ring systems.

The questions that the spacecraft's instruments helped find answers to were quickly outweighed by the unexpected discoveries made and the number new mysteries that they uncovered.

The moons of Jupiter were revealed as tiny worlds of fire and ice. The first active volcanoes outside of Earth were found on the Jovian moon 'Io' ('eye-oh'). The surface of the moon Europa was covered in cracked ice, suggesting a liquid ocean below.

Saturn's rings were shown to number in the thousands. Mysterious clouds of dust seemed to hover above them orbiting like 'spokes' on a bicycle wheel. Like Jupiter, Saturn's moons were diverse worlds, cracked, twisted, and pockmarked by giant meteor impacts. The moon Titan even had a dense atmosphere where organic compounds may rain from the sky.

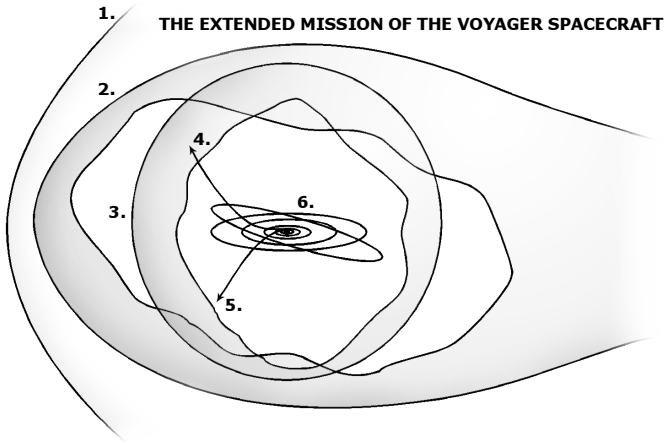
Uranus and Neptune offered up their own surpises. At such an enormous from the Sun, instead of finding cold, inactive planets, they turned out to have some of the highest winds in the Solar System. One of Neptune's moons even had geysers shooting dark material high above its surface.

After more than 26 years in space, the Voyager spacecraft are now well outside the planetary Solar System. Voyager 1 is currently the most distant spacecraft from Earth more than twice as far as Pluto.

Both spacecraft are still returning scientific information about their surroundings through NASA's Deep Space Network. Eventually the signals from these spacecraft will disappear into the background noise of the Universe, however they are expected to return valuable data until at least the year 2020.

Travelling at more 17km/second, the Voyager craft will reach the next closest star in 115,000 years.

For more information on the Internet:
http://voyager.jpl.nasa.gov/



1. TERMINATION SHOCK - the slowing of the one million km/hr solar wind
2. HELIOPAUSE - the Sun's magnetic field warped by the interstellar wind
3. BOW SHOCK - created by the motion of our Solar System through the galaxy
4. VOYAGER 1 - travelled past Jupiter and Saturn, now the most distant spacecraft
5. VOYAGER 2 - conducted the Grand Tour of Jupiter, Saturn, Uranus, and Neptune
6. SOLAR SYSTEM - our Sun and nine planets have been left far behind by Voyager

VOYAGER MISSION HIGHLIGHTS

VOYAGER 1

• Sept 5 1977	Launched from Cape Canaveral, Florida
• Sept 5, 1977	First photo of the Earth & Moon together
• Mar 5, 1979	Jupiter fly-by - closest approach
• Nov 12, 1980	Saturn fly-by - passes through rings, heads out of the Solar System.
• Feb 17, 1998	Voyager 1 becomes the most distant human-made object in space.

VOYAGER 2

• Aug 20 1977	Launched from Cape Canaveral, Florida
• July 9, 1979	Jupiter fly-by - photographs active volcano on Jupiter's moon "Io".
• Aug 25, 1981	Saturn fly-by - images of rings and moons
• Jan 24, 1986	Uranus fly-by - discovers ring system
• July, 1987	Observes distant Supernova 1987A
• Mid-1988	First colour images of Neptune
• Aug 25, 1989	Neptune fly-by - close-up image of Triton
• Jan 1, 1990	Begins its Interstellar Mission
• Feb 14, 1990	Last images from Voyager, Portrait of the Solar System - the "Pale Blue Dot".

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